

PATENT NO.: 6,998,156 B2
ISSUED: February 14, 2006
INVENTOR(S): Daniel Bubb, James Horwitz, John Callahan, Richard Haglund, Jr., and Michael Papantonakis

Corrections to Claims

Please replace the listing of claims in the patent with the following listing of claims:

1. A method for transferring a material onto a substrate comprising the steps of:
 - (a) directing light of a wavelength in the infrared region which is resonant with a vibrational mode of a target starting material,
 - (b) vaporizing the target starting material with the light without decomposing~~[[,]]~~ the target starting material, and
 - (c) depositing the vaporized material on a substrate in solid form that is essentially same chemically as the ~~[[starting]]~~ target starting material.
2. The method of claim 1 wherein the vibrational mode is in the infrared region of 1-15 microns.
3. The method of claim 1 wherein the vibrational mode is in the infrared region of 2-10 microns.
4. The method of claim 1 wherein the material is selected from the group consisting of organic, inorganic, biological materials and mixtures thereof.
5. The method of claim 1 wherein the material is polymeric.
6. The method of claim 1 including the steps of subjecting the target starting material and the substrate to an environment selected from the group consisting of sub-atmospheric, atmospheric and above atmospheric pressure and locating the target starting material and the substrate in the vicinity of each other so that the vaporized material from the target starting material can be deposited on the substrate by free fall; and the temperature of the substrate is such that the vaporized material settles on the substrate and becomes solid.

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7. The method of claim 6 wherein the environment is sub-atmospheric pressure and the sub-atmospheric pressure is on the order of 4×10^{-8} Torr.
8. The method of claim 1 wherein thickness of the coating on the substrate is in the range of about 10 angstroms to 1 micron.
9. The method of claim 8 wherein the light is issued by a tunable pulsed laser and deposition rate of the material on the substrate is in the range of about 1 to 300 mg/cm²/macropulse.
10. The method of claim 1 wherein the light is provided by a laser source delivering a stream of pulses of 100 fs to 5 ms duration at pulse reactivation frequencies ranging from 1 Hz to 3 MHz.
11. The method of claim 10 wherein the laser is operating in a continuous wave mode.